

WHAT IS CLAIMED IS:

1 1. A method of identifying an intervention that mimics the effects of
2 caloric restriction in cells, comprising:
3 obtaining a biological sample;
4 exposing said biological sample to an intervention;
5 waiting a specified period of time;
6 assessing changes in gene expression levels, levels of RNA, protein, or protein
7 activity levels related to one or more biomarkers of aging; and
8 identifying said intervention as one that mimics the effects of caloric
9 restriction if one or more changes in said levels also occurs in caloric restriction.

1 2. The method of claim 1, wherein said biological sample comprises
2 cells.

1 3. The method of Claim 2, wherein said cells are obtained from a
2 mammal.

1 4. The method of claim 3, wherein said mammal is a mouse.

1 5. The method of Claim 1, wherein said change in gene expression levels,
2 levels of RNA, protein, or protein activity levels corresponds to a change in gene expression
3 for a gene encoding a chaperone protein.

1 6. The method of Claim 5, wherein said gene encoding a chaperone
2 protein is GRP78.

1 7. The method of Claim 1, wherein said biomarker is apoptosis.

1 8. The method of Claim 1, wherein said biomarker is aging.

1 9. The method of Claim 8, wherein said biomarker of aging is a
2 production of cancer cells.

1 10. The method of Claim 1, wherein said changes in said gene expression
2 level, levels of RNA, protein, or protein activity levels related to one or more biomarkers of
3 aging occur in 6 weeks or less.

1 11. The method of Claim 10, wherein said changes in said gene expression
2 levels, levels of RNA, protein, or protein activity levels related to one or more biomarkers of
3 aging occur in four weeks or less.

1 12. The method of Claim 11, wherein said changes in said gene expression
2 levels, levels of RNA, protein, or protein activity levels related to one or more biomarkers of
3 aging occur in two weeks or less.

1 13. The method of Claim 12, wherein said changes in said gene expression
2 levels, levels of RNA, protein, or protein activity levels related to one or more biomarkers of
3 aging occur in about two days or less.

1 14. A method according to claim 1 wherein changes in gene expression are
2 evaluated using a gene chip.

1 15. The method of Claim 14, wherein the gene chip contains genes for
2 immune system activation.

1 16. The method of Claim 14, wherein the gene chip contains genes for
2 DNA repair.

1 17. The method of Claim 14, wherein the gene chip contains genes
2 associated with apoptosis.

1 18. The method of Claim 14, wherein the gene chip contains genes for the
2 enteric nervous system.

1 19. The method of claim 1, wherein said biological sample is a test animal.

1 20. The method of Claim 19 additionally comprising determining changes
2 in said levels in a reference animal having identifying characteristics of along term calorie-
3 restricted animal wherein the reference animal has been on a calorie restricted diet for less
4 than about 6 weeks and wherein said changes are used in said identifying said intervention as
5 one that mimics the effects of calorie restriction.

1 21. The method of Claim 20, wherein the reference animal has been on a
2 calorie restricted diet for less than about 4 weeks.

